
**Geotechnical investigation and testing —
Laboratory testing of soil —**

**Part 7:
Unconfined compression test on
fine-grained soil**

iTeh STANDARD PREVIEW
*Reconnaissance et essais géotechniques — Essais de sol au
laboratoire —
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Partie 7. Essai de compression simple sur sol cohérent*

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote.
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An ISO/PAS or ISO/TS is reviewed after three years with a view to deciding whether it should be confirmed for a further three years, revised to become an International Standard, or withdrawn. In the case of a confirmed ISO/PAS or ISO/TS, it is reviewed again after six years at which time it has to be either transposed into an International Standard or withdrawn.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TS 17892-7 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 182, *Geotechnics*, Subcommittee SC 1, *Geotechnical investigation and testing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read "...this European pre-Standard..." to mean "...this Technical Specification...".

ISO 17892 consists of the following parts, under the general title *Geotechnical investigation and testing — Laboratory testing of soil*:

- *Part 1: Determination of water content*
- *Part 2: Determination of density of fine-grained soil*
- *Part 3: Determination of particle density — Pycnometer method*
- *Part 4: Determination of particle size distribution*
- *Part 5: Incremental loading oedometer test*
- *Part 6: Fall cone test*

- *Part 7: Unconfined compression test on fine-grained soil*
- *Part 8: Unconsolidated undrained triaxial test*
- *Part 9: Consolidated triaxial compression tests on water-saturated soil*
- *Part 10: Direct shear tests*
- *Part 11: Determination of permeability by constant and falling head*
- *Part 12: Determination of the Atterberg limits*

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Foreword

This document (CEN ISO/TS 17892-7:2004) has been prepared by Technical Committee CEN/TC 341 "Geotechnical investigation and testing", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 182 "Geotechnics".

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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- Part 10: *Direct shear tests*
- Part 11: *Determination of permeability by constant and falling head*
- Part 12: *Determination of Atterberg limits*

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Introduction

This document covers areas in the international field of geotechnical engineering never previously standardised. It is intended that this document presents broad good practice throughout the world and significant differences with national documents is not anticipated. It is based on international practice (see [1]).

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1 Scope

This document covers the determination of an approximate value of the unconfined compressive strength for a square or cylindrical water-saturated homogeneous specimen of undisturbed or remoulded cohesive soil of sufficiently low permeability to keep itself undrained during the time it takes to perform the test within the scope of geotechnical investigations according to prEN 1997-1 and -2.

The unconfined compressive strength of cohesive soils is a measure of the apparent cohesion. A cohesive soil behaves as if it is truly cohesive, e.g. clay and clayey soils, but most soils in this group behave cohesively due to negative pore pressure and friction and not due to actual cohesion.

This test method is useful to derive the undrained shear strength of soil. It should however be noted that no provisions are taken to prevent drainage. The derived value for undrained shear strength is therefore only valid for soils of low permeability, which behave sufficiently undrained during testing.

The method is not appropriate for fissured or varved clays or silts or peats.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

prEN 1997-1, *Eurocode 7: Geotechnical design - Part 1: General rules*

prEN 1997-2, *Eurocode 7: Geotechnical design - Part 2: Design assisted by laboratory testing*

CEN ISO/TS 17892-1, *Geotechnical investigation and testing — Laboratory testing of soil — Part 1: Determination of water content (ISO/TS 17892-1:2004)*. <https://standards.iteh.ai/catalog/standards/sist/33b81fbb-dcd0-4332-9671-5d4904d1d367/iso-ts-17892-1-2004>

CEN ISO/TS 17892-2, *Geotechnical investigation and testing — Laboratory testing of soil — Part 2: Determination of bulk density (ISO/TS 17892-2:2004)*.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

unconfined compressive strength

q_u

maximum vertical stress an unconfined specimen can sustain or the vertical stress at 15 % vertical strain, whichever occurs first during the performance of the test

3.2

undrained shear strength

c_u

undrained shear strength is equal to one half of the unconfined compressive strength

3.3

undisturbed sample

normally sample of quality class 1 according to prEN 1997-2